

Analyses of GARVEE Bonding Capacity 2004

Analyses for the
California Transportation Commission
April 2004

State Treasurer Philip Angelides



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Federal Deposits into the State Highway Account

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Executive Summary

These analyses are provided to the California Transportation Commission (Commission) to assist in its compliance with the provisions of SB 928 (Burton) (Chapter 862, Statutes of 1999) requiring the Commission to prepare, in conjunction with the State Treasurer's Office (STO), an annual analysis of California's bonding capacity for issuing Grant Anticipation Revenue Vehicles, or GARVEE bonds and notes, which are capital market borrowings repaid by federal transportation funds deposited in the State Highway Account.

The State's authority for issuance of GARVEE obligations derives both from federal legislation and from the passage of SB 928 in 1999, which established Government Code Sections 14550 through 14555.9. The bill was sponsored by the STO to ensure California had the necessary state legislative authority to make use of this new financing tool for accelerating high priority transportation projects. SB 928 became effective January 1, 2000, and was further amended by AB 438 (Chapter 113, Statutes of 2001) and AB 3026 (Chapter 438, Statutes of 2002). This bonding capacity analysis is the fifth prepared since 2000, and the first analysis that is prepared based on both the issuance of bonds and the remaining bonding capacity based on varied assumptions.

The issuance of additional GARVEE bonds is subject to one important statutory condition: pursuant to Government Code Section 14553.4, the Treasurer may not authorize the issuance of the bonds if the annual debt service on all outstanding GARVEE obligations would exceed 30 percent of the State's historical annual deposits in the State Highway Account from federal funding. Thus, the current and any future bonding capacity analyses must take place in the context of this "cap."

Additional factors affecting bonding capacity, such as maturity structures and interest rates also are subject to uncertainty and policy decisions at this time. As a result, these analyses continue the practice of prior analyses by providing "sensitivity analyses" under different scenarios, with varying assumptions for maturity dates and interest rates. The Analyses of GARVEE Bonding Capacity 2004 differs from prior analyses in several significant ways. The changes, discussed in detail under the heading "Changes from Prior Analyses" on page 3 of this report, focus on the capacity limitations contained in the Master Trust Indenture adopted in conjunction with the issuance of the Series 2004A Bonds. This approach should continue to assist the Commission in examining and responding to future applications in the context of alternative scenarios.

On March 10, 2004, the State issued \$614,850,000 State of California (California Department of Transportation) Federal Highway Grant Anticipation Bonds Series 2004A, the first issuance of GARVEE obligations. The Series 2004A Bonds are structured with a level debt solution with serial maturities from 2005 through 2015. The maximum annual debt service of the Series 2004A Bonds is \$72,901,444 in Fiscal Year (FY) 2013. The issue received underlying ratings of Aa3, AA-, and AA- from Moody's, Standard & Poor's and Fitch Ratings, respectively. With the exception of the serial maturity 2005, the Series 2004A Bonds were insured and therefore rated in the AAA category.

The Commission approved a Master Trust Indenture for all GARVEE senior lien obligations that has a stronger additional bonds test than SB 928. This test requires the annual debt service on all outstanding GARVEE obligations not exceed 25 percent of the State's historical annual deposits in the State Highway Account of all federal funds that can be legally pledged. The Commission also adopted policy guidelines that stipulate the intent to not issue additional GARVEE obligations where the annual debt service on all outstanding obligations

would exceed 15 percent of the State's historical annual deposits in the State Highway Account from all federal funds that can be legally pledged to payment of the Bonds. The analyses in this report are based upon the additional bonds test in the Master Trust Indenture, which provides a more conservative test than the statutory requirements.

The analyses show a resulting bonding capacity ranging from a low of \$2.80 billion to a high of \$7.95 billion under varying market conditions, assuming all Federal Transportation Fund deposits to the State Highway Account that can be legally pledged are used in the capacity calculations. It should be noted that the higher bonding capacity of \$7.95 billion is at the 24-year amortization and outside of current Commission policy limit of 12 years. If all future bond issues are structured with a 12-year amortization period and at interest rate levels similar to those achieved for the first sale of GARVEE bonds, the remaining capacity for issuance of GARVEE bonds under the Master Trust Indenture 25 percent revenue test would be approximately \$5.17 billion. In comparison, the 30 percent "statutory cap" required by SB 928 would permit the issuance of \$6.36 billion of additional GARVEE bonds, or \$1.19 billion more than the amount permitted by the additional bond provisions of the Master Trust Indenture.

These analyses demonstrate that a wide range of circumstances, including policy and market factors, can affect the existing capacity for future state GARVEE financings. Therefore, the analyses should be used as a tool for understanding the implications of alternative project applications and the related potential GARVEE bond structures that the Commission may be asked to consider over the coming year.

I. Purpose of Analyses

The following analyses are provided to assist the Commission in meeting the requirements of SB 928 (Burton) (Chapter 862), sponsored by the STO to ensure California had the necessary state legislative authority to make use of this financing tool for accelerating high priority transportation projects. The analyses relate specifically to those requirements found in Section 14553(b) of the Government Code, which states:

“Notwithstanding Section 7550.5 of the Government Code, on or before April 1 of each year, the commission, in conjunction with the Treasurer’s office, shall prepare an annual analysis of the bonding capacity of federal transportation funds deposited in the State Highway Account in the State Transportation Fund.”

The analyses have been performed consistent with the GARVEE bonds bonding capacity guidelines provided in Section 14553.4 of the Government Code, which states:

“The Treasurer may not authorize the issuance of notes if the annual repayment obligations of all outstanding notes in any fiscal year would exceed 30 percent of the total amount of federal transportation funds deposited in the State Highway Account in the State Transportation Fund for any consecutive 12-month period within the preceding 24 months.”

The following analyses are intended to measure the capacity of the State Highway Account to support future issuance of GARVEE bonds, given:

1. the historical record of federal deposits to the State Highway Account (we examine deposits of pledged funds only);
2. requirements preceding any issuance of additional bonds under the Master Trust Indenture; and
3. the “statutory cap” on total outstanding GARVEE bonds.

An additional bonds test that satisfies the Master Trust Indenture will also satisfy the statutory requirements.

II. The 2004 GARVEE Financing

The Series 2004A Bonds are secured by a Master Trust Indenture dated February 1, 2004 as amended and supplemented by a First Supplemental Indenture dated February 1, 2004, by and among the Treasurer, the Commission and the California Department of Transportation (Department). The Series 2004A Bonds and all future Bonds and Obligations issued under the Master Trust Indenture are secured solely by the Trust Estate that consists primarily of Federal Transportation Funds. The primary source of Federal Transportation Funds is amounts appropriated to the State by the federal government pursuant to Federal Aid Authorization pursuant to Title 23 U.S. Code authorizing federal funding of state transportation projects.

The Department entered into a Memorandum of Agreement with the Federal Highway Administration (FHWA) in anticipation of reimbursement by FHWA for debt service and other bond related costs associated with the federal-aid projects approved by the FHWA.

The Master Trust Indenture provides for the issuance of additional bonds on parity with the Series 2004A Bonds, which is more conservative than the 30 percent “statutory cap.” The additional bonds may be issued only after a Department Representative certifies that the total amount of Federal Transportation Funds deposited into the State Highway Account in the State Transportation Fund for any 12-month consecutive period within the preceding 24 months was not less than four times the amount of annual debt service with respect to all outstanding obligations in any fiscal year.

No provision of the Master Trust Indenture prevents the Treasurer from issuing bonds or other obligations on a basis subordinate to the Series 2004A Bonds. Any subordinate bonds would have to meet the “statutory cap” for additional bonds.

The \$657,713,000 proceeds of the Series 2004A Bonds will be used to pay a portion of the costs of acquisition of right-of-way and construction costs for eight federal aid projects approved by the Commission for funding from the Series 2004A Bonds. The eight projects are:

- San Diego I-15 Managed Lanes
- Riverside SR-60/SR-91/I-215
- Santa Clara I-880/Coleman Avenue
- Santa Clara SR-87 (North)
- Santa Clara SR-87 (South)
- Los Angeles I-5 HOV Lanes
- Los Angeles I-405 Auxiliary Lanes
- Los Angeles I-405/Highway 101 Gap Closure

III. Need for Sensitivity Analyses

There are many factors that will influence the State's future capacity to issue GARVEE bonds. These factors include the dynamics of financial markets, the maturity and interest rates for future financings and the available revenues for the additional bonds test. As a result, no single bonding capacity analysis is sufficient for purposes of guiding the Commission's evaluation of the potential for future use of GARVEE bonds to finance transportation projects. Therefore, to facilitate an informed consideration of future applications with structures and terms not yet known to the Commission, we have performed a series of "sensitivity analyses" under alternative scenarios. The factors that have been varied in these different analyses are identified in the following table.

Primary Factors Affecting Bonding Capacity Sensitivity Analyses	
Final Maturity	
Assumed Interest Rates	

IV. Changes from Prior Analyses

The assumptions in the Analyses of GARVEE Bonding Capacity 2004 differ from prior analyses in several significant ways:

- pledged revenues,
- final maturities, and
- interest rate assumptions.

Pledged Revenues

Past reports analyzed debt capacity based upon all federal transportation funds deposited in the State Highway Account, both with and without amounts designated for local pass-through. Past reports also analyzed low, average and high historic revenue calculations for consecutive 12-month periods over the prior 24 months of federal deposits. This report calculates debt capacity based upon the pledge of funds and additional bond provisions of the Master Trust Indenture that were adopted by the Commission for issuance of all GARVEE bonds.

The revenue pledge consists of all Federal Transportation Funds that are deposited into the State Highway Account. Federal Transportation Funds legally available for payment of debt service include those derived from federal aid authorization under Title 23, including apportioned funds (i.e., National Highway System, Interstate Maintenance, Highway Bridge Rehabilitation and Replacement, Surface Transportation Programs, Congestion Mitigation and Air Quality and amounts available under minimum guarantees) with corresponding Obligation Authority (OA). Excluded from these total funds and OA legally available for payment of debt service are those

categories of funds related to specific congressional action (i.e., High Priority Projects – better known as “Earmarks”) and other specified programmatic “set-asides” as determined in law by formula (i.e., State Planning and Research, Metropolitan Planning, Revenue Aligned Budget Authority, Discretionary, and Section 163).

The additional bonds test is based upon the highest consecutive 12-month of pledged revenue deposits in the prior 24 months. These historic annual deposits are a known quantity at any given point in time, but clearly are subject to change over time, and must be re-examined at the time of each potential GARVEE bond issuance.

Final Maturities

Prior reports analyzed bonding capacity based upon a range of final maturities based upon 5-year increments from 5 to 20 years. The analyses in this report are based on bond maturities that coincide with the 6-year federal appropriation cycles and therefore assume additional GARVEE bonds issued in 2004 with final maturities in 2010, 2016, 2022 and 2028.

Interest Rate Assumptions

The interest rate assumptions used for this analyses are based on the weighted average coupon, using a level debt solution for each final maturity (or amortization period), in lieu of an average of the interest rates for each year. This report uses interest rates based on the Municipal Market Data (MMD) AA bond interest rate scale corresponding to the rating achieved for the initial GARVEE bond sale. The prior reports were based primarily on the MMD single A bond interest rate scale.

Changing interest rates can affect bonding capacity. This report continues the practice of also providing “sensitivity analyses” using interest rates 100 basis points higher than the “base case” to illustrate the impact of higher interest rates on bonding capacity.

Details regarding the assumptions used for all the analyses are found in the body of this document and in the various attachments.

V. Information Sources

In performing these bonding capacity analyses, the STO is utilizing data obtained from the Department regarding deposits into the State Highway Account in the State Transportation Fund from federal transportation funds. The amounts provided by the Department represent federal funds that can be legally pledged under the Indenture for payment of the Bonds. This information was provided on a monthly basis for the period of January 2002 through December 2003. See **Attachment A** for the complete listing of these monthly deposits and related calculations.

Estimates of potential interest costs under various scenarios were developed by the STO based on the AA index published by Municipal Market Data, a widely used industry benchmark.

VI. Summary of Alternative Assumptions

For the 2004 bonding capacity analyses, we chose to use the MMD “AA” interest rate scale as an index due to the actual underlying ratings received for the first issue of GARVEE bonds. The two alternative scenarios for market conditions utilized in these analyses are as follows:

1. **Base Case:** Based on the March 10, 2004 MMD AA interest rate scale.
2. **Market Sensitivity Case:** Base Case plus 100 basis points.

Many observers believe long-term interest rates will increase from the current historically low levels. For this reason, and based upon the expected short-term maturity structure of the State’s current and future GARVEE obligations, a 100 basis point increase in interest rates is used for the market sensitivity analyses.

Various alternatives for the final maturity of the bonds were analyzed for each case. The table below summarizes the range of assumptions for the sensitivity analyses. The different scenarios for each factor combine for a total of eight different analyses.

Factors	Range of Assumptions
Final Maturity	Four scenarios: varying at 6, 12, 18 & 24 years from date of issuance
Assumed Interest Rates	Two scenarios: one at AA MMD market rates on March 10, 2004 and one at 100 basis points above the March 10 AA MMD market rates.

See **Attachment B** for the detailed assumptions utilized in each sensitivity analysis.

It also should be noted that the current analyses, by necessity, require significant simplification as compared to the myriad of structuring nuances that would be involved in actual bond sales. As a result, certain ambiguities or alternative interpretations could lead to somewhat differing results in practice. One example of a simplification common to all scenarios is the assumption that all GARVEE bonds within the capacity of a given scenario would be issued in a single, initial year, not staggered over multiple years, as typically would be expected in a bonding program of significant magnitude.

If, instead, such bonds were staggered and this financing structure was assumed to have a fixed “end date” represented by the assumed final maturity used in each scenario, each resulting measure of maximum bonding capacity would have to be adjusted downward. This would be necessary because the GARVEE bonds issued in subsequent years would have a shorter period during which to amortize principal before the fixed end date. This would increase the annual debt service necessary for a given par amount of bonds, causing a reduction in total bonding capacity, assuming a fixed amount of annual revenues for each scenario.

Alternatively, this simplification would not have this constraint on capacity if future financings were assumed to be structured on a “rolling maturity” basis, that is, with each GARVEE bond issued in subsequent years within each scenario having exactly the same underlying terms, such as total years to maturity and interest rate, regardless of the timing of any future bond issuance. This latter simplification also would assume a fixed amount of annual revenues for each scenario.

This discussion is offered as an example, which is by no means exhaustive, of the implications of the necessary simplifications involved in any analysis of bonding capacity given current uncertainty about the “real life” conditions that will exist at the time of any future issuance of GARVEE bonds or obligations. Therefore, care should be exercised in using these analyses, to avoid erroneous interpretations or conclusions.

VII. Summary of Results

The four reports from prior years were based upon numerous assumptions and incorporated complex analyses of alternatives because GARVEE financings only existed in legislation. This report is the first to be completed based upon the adoption of the Master Trust Indenture for the bond financings and policy guidelines by the Commission. Therefore, the analyses in this report are based upon the adopted financing documents with some sensitivity analyses of alternative maturities and higher interest rates.

The average monthly deposits into the State Highway Account during the analysis period are different from the amounts analyzed in prior reports because this report is based upon all Federal Transportation Funds that are deposited into the State Highway Account and are legally available to be pledged in the Master Trust Indenture to pay the GARVEE bonds, as discussed previously under “Pledged Revenues” in Section IV of this report.

The interest rates used for the 2004 analyses assume a AA rating on the GARVEE bonds. Municipal market interest rates have remained at historically low levels this year. The average interest rate for AA rated bonds with a 12-year final maturity as of March 10, 2004 is 2.89 percent. The Commission policy guidelines established 12 years as the maximum maturity for GARVEE bonds. If all future GARVEE bond issues were sold with final maturities of 12 years, approximately \$5.17 billion of additional bonds could be issued in the current interest rate environment. A 100 basis point increase in interest rates would reduce the bonding capacity by approximately \$290 million to \$4.88 billion. A shorter amortization period would reduce the additional bonding capacity, and a longer amortization period would increase the additional bonding capacity.

The following table summarizes key results of our analyses. Detailed worksheets supporting the results can be found in **Attachments C and D** for ease of reference.

Summary of Results for GARVEE Bonding Capacity Sensitivity Analyses		
Final Maturity Amortization Period	Base Case March 10, 2004 AA MMD Scale	Market Sensitivity Case Base Case plus 100 Basis Points
6 years	\$2.90 billion	\$2.80 billion
12 years	\$5.17 billion	\$4.88 billion
18 years	\$6.81 billion	\$6.28 billion
24 years	\$7.95 billion	\$7.19 billion

VIII. Recent Events

Interest in GARVEE bonds as a financing tool has continued to grow as regional agencies looked for new ways to advance transportation projects. In response, in 2003 the Department gave statewide presentations on GARVEE bonds, and the Commission held public discussions and adopted amended guidelines regarding the use of this tool.

In October and November 2003, the Commission took a proactive role in establishing a solid foundation for future GARVEE financings. After spending two months reviewing proposed project selection criteria and bond issuance policies, the Commission adopted a GARVEE policy in December. This policy will extend through the next federal transportation reauthorization act, which is expected to continue through the 2008-09 federal fiscal year.

The policy, contained in Commission Resolution No. G-03-21, is as follows:

- Debt Limit. The Commission will limit annual GARVEE debt service to 15 percent of qualifying federal revenues. This limit will be calculated on the basis described in Section 14553.4 of the Government Code (i.e., 15 percent of the total amount of federal transportation funds deposited in the State Highway Account for any consecutive 12-month period within the preceding 24 months).
- Term. Each bond will be structured for debt service payments over a term of no more than 12 years.
- Project Selection. The Commission will select projects for accelerated construction through the use of GARVEE bonding. The selection will be made through the programming process for the State Transportation Improvement Program (STIP) and the State Highway Operation and Protection Program (SHOPP). The Commission will select projects that are major improvements to corridors and gateways for interregional travel and goods movement. Major improvements include projects that increase capacity, reduce travel times, or provide long-life rehabilitation of key bridges or roadways.

At the beginning of the year, the San Diego Interstate 15 Managed Lanes Project (Middle Segment) was the only project programmed by the Commission for GARVEE financing. By the end of the year, many other projects had been proposed; and ultimately, seven additional projects were programmed for GARVEE financing, and allocations were made for all eight approved projects. The seven additional projects are: Interstate 880/Coleman Avenue Interchange, State Route 87 (North) and State Route 87 (South) in Santa Clara County, State Route 60/State Route 91/Interstate 215 Interchange in Riverside County, and the Interstate 5 HOV Lanes, Interstate 405 Auxiliary Lane, and Interstate 405/Highway 101 Gap Closure in Los Angeles County. Costs of construction and/or right of way related to the eight projects that were funded from the inaugural issuance of California's Federal Highway Grant Anticipation Bond totaled \$657,713,000.

IX. Conclusion

As the above analyses show, the ultimate capacity existing for the State's future GARVEE financings will depend on a wide range of circumstances over time, including market conditions, maturity structures, and other factors that may be considered by the Commission in the future.

We hope these analyses will prove useful in light of some of the structuring options available for GARVEE financing, in addition to meeting the immediate goal of assisting the Commission in preparing its annual report.

ATTACHMENT A-1

FEDERAL DEPOSITS INTO THE STATE HIGHWAY ACCOUNT

Cumulative 12-Month Federal Deposits into the State Highway Account Over 24-month period, ending December 31, 2003

Period Covered		12-Mo. Total Revenues Deposited	
Jan-02	Dec-02	\$1,919,881,391.28	
Feb-02	Jan-03	\$1,766,833,541.86	
Mar-02	Feb-03	\$1,785,243,011.34	
Apr-02	Mar-03	\$1,765,468,176.76	Lowest 12-mo. Total
May-02	Apr-03	\$2,038,215,482.34	
Jun-02	May-03	\$2,110,361,849.40	
Jul-02	Jun-03	\$2,306,615,726.16	
Aug-02	Jul-03	\$2,310,377,205.90	
Sep-02	Aug-03	\$2,357,166,607.60	Highest 12-mo. Total
Oct-02	Sep-03	\$2,327,931,649.34	
Nov-02	Oct-03	\$2,246,473,761.02	
Dec-02	Nov-03	\$2,231,032,820.30	
Jan-03	Dec-03	\$2,249,510,487.55	
		\$2,108,854,746.99	Average 12-mo. Total

Source: California Department of Transportation

ATTACHMENT A-2

FEDERAL DEPOSITS INTO THE STATE HIGHWAY ACCOUNT

	Monthly Deposits of all Federal Funds into State Highway Account				Monthly Deposits of Legally Pledged Federal Transportation Funds	
	1999	2000	2001	2002	Revised 2002	2003
	Deposit Amount	Deposit Amount	Deposit Amount	Deposit Amount	Deposit Amount	Deposit Amount
Month						
January	\$ 201,606,455.01	\$ 214,693,101.00	\$ 292,768,595.59	\$ 374,758,124.97	\$ 282,681,171.87	\$ 129,633,322.45
February	\$ 70,480,828.62	\$ 94,948,610.41	\$ 101,908,226.48	\$ 209,544,305.44	\$ 158,059,894.83	\$ 176,469,364.31
March	\$ 131,057,017.42	\$ 205,220,057.43	\$ 116,551,593.66	\$ 260,419,048.96	\$ 196,434,865.67	\$ 176,660,031.09
April	\$ 122,732,697.83	\$ 147,504,794.21	\$ 119,796,825.42	\$ 196,474,114.54	\$ 148,201,010.84	\$ 420,948,316.42
May	\$ 132,322,008.15	\$ 108,381,081.51	\$ 156,000,075.99	\$ 115,355,567.53	\$ 87,013,048.79	\$ 159,159,415.85
June	\$ 121,341,118.90	\$ 167,864,562.76	\$ 253,660,527.36	\$ 102,356,476.33	\$ 77,207,795.51	\$ 273,461,672.27
July	\$ 132,756,296.49	\$ 150,382,435.48	\$ 147,895,873.85	\$ 214,132,144.40	\$ 161,520,515.45	\$ 165,281,995.19
August	\$ 249,424,523.43	\$ 117,373,486.00	\$ 204,700,825.57	\$ 216,364,894.49	\$ 163,204,685.51	\$ 209,994,087.21
September	\$ 202,260,569.27	\$ 122,198,875.54	\$ 174,876,482.17	\$ 215,774,125.14	\$ 162,759,066.42	\$ 133,524,108.16
October	\$ 122,918,370.81	\$ 150,734,015.97	\$ 182,116,657.75	\$ 226,730,163.97	\$ 171,023,239.20	\$ 89,565,350.88
November	\$ 109,248,154.57	\$ 104,873,241.58	\$ 234,233,366.71	\$ 182,207,900.39	\$ 137,439,962.94	\$ 121,999,022.22
December	\$ 140,192,794.42	\$ 41,768,650.18	\$ 263,201,366.08	\$ 231,122,159.12	\$ 174,336,134.25	\$ 192,813,801.50
TOTAL	\$ 1,736,340,834.92	\$ 1,625,942,912.07	\$ 2,247,710,416.63	\$ 2,545,239,025.28	\$ 1,919,881,391.28	\$ 2,249,510,487.55
Monthly average	\$144,695,069.58	\$135,495,242.67	\$187,309,201.39	\$212,103,252.11	\$159,990,115.94	\$187,459,207.30

Source: California Department of Transportation. The Revised 2002 Deposit Amount column reflects deposits into the State Highway Account of Federal Transportation Funds that could be legally pledged under the Master Trust Indenture, which is less than all Federal Funds deposited in the State Highway Account in 2002.

ATTACHMENT B

DETAILED ASSUMPTIONS FOR SENSITIVITY ANALYSES

Summary of Assumptions for GARVEE Bonding Capacity Sensitivity Analyses			
Base Case – Current Market Conditions			
	Factors	Assumptions	Comments
	Final Maturity	6, 12, 18 and 24 years	Analyses run at each final maturity listed at left
	Interest Rates	1.95%, 2.89%, 3.50% and 3.91%	Rates indicated relate to each respective final maturity above; listed rates represent the weighted average coupon for a bond issue sizing with level annual debt service.
	Annual Revenues	\$2,357,167,000	The Master Trust Indenture additional bonds test requires that Federal Transportation Funds deposited in the State Highway Account for the highest 12 consecutive months in the last 24 months be not less than four times annual debt service.

Market Sensitivity Case – Alternative Market Conditions			
	Factors	Assumptions	Comments
	Final Maturity	6, 12, 18 and 24 years	Analyses run at each final maturity listed at left
	Interest Rates	2.95%, 3.89%, 4.50% and 4.91%	Rates indicated relate to each respective final maturity above; listed rates represent the weighted average coupon for a bond issue sizing with level annual debt service.
	Annual Revenues	\$2,357,167,000	The Master Trust Indenture additional bonds test requires that Federal Transportation Funds deposited in the State Highway Account for the highest 12 consecutive months in the last 24 months be not less than four times annual debt service.

ATTACHMENT C

DETAILED WORKSHEET FOR SENSITIVITY ANALYSES

OVERVIEW OF GARVEE BONDING CAPACITY ANALYSES After the Issuance of the \$614,850,000 Series 2004A Bonds	
<p>The Master Trust Indenture Additional Bonds Test requires that Federal Transportation Funds deposited in the State Highway Account for the highest 12 consecutive months in the last 24 months be not less than four times Annual Debt Service.</p> <p>The Series 2004A Bonds maximum Annual Debt Service has been subtracted from the last 12 highest consecutive months in order to calculate the remaining Additional Debt Capacity under the Master Trust Indenture.</p>	
Base Case Maximum Par Amount of Bonding Capacity Interest rate Maximum Assumed Annual Debt Service Under the Indenture * Term of Bond Issue	\$2,897,414.23 1.95% (516,390.75) 6
Market Sensitivity Maximum Par Amount of Bonding Capacity Interest rate Maximum Assumed Annual Debt Service Under the Indenture * Term of Bond Issue	\$2,802,029.32 2.95% (516,390.75) 6
Base Case Maximum Par Amount of Bonding Capacity Interest rate Maximum Assumed Annual Debt Service Under the Indenture * Term of Bond Issue	\$5,174,071.89 2.89% (516,390.75) 12
Market Sensitivity Maximum Par Amount of Bonding Capacity Interest rate Maximum Assumed Annual Debt Service Under the Indenture * Term of Bond Issue	\$4,877,444.71 3.89% (516,390.75) 12
Base Case Maximum Par Amount of Bonding Capacity Interest rate Maximum Assumed Annual Debt Service Under the Indenture * Term of Bond Issue	\$6,811,029.64 3.50% (516,390.75) 18
Market Sensitivity Maximum Par Amount of Bonding Capacity Interest rate Maximum Assumed Annual Debt Service Under the Indenture * Term of Bond Issue	\$6,279,307.29 4.50% (516,390.75) 18
Base Case Maximum Par Amount of Bonding Capacity Interest rate Maximum Assumed Annual Debt Service Under the Indenture * Term of Bond Issue	\$7,946,443.98 3.91% (516,390.75) 24
Market Sensitivity Maximum Par Amount of Bonding Capacity Interest rate Maximum Assumed Annual Debt Service Under the Indenture * Term of Bond Issue	\$7,188,292.78 4.91% (516,390.75) 24
*25% of legally pledged Federal Transportation Funds deposited in the State Highway Account less maximum annual debt service for the Series 2004A Bonds. (white / non-shaded) = Base Case Scenarios based on March 10, 2004 AA MMD Scale (yellow / shaded) = Market Sensitivity Case Scenarios based on March 10, 2004 AA MMD Scale Plus 100 Basis Points	

**DETAILED SUMMARY TABLES
FOR SENSITIVITY ANALYSES**

GARVEE BONDING CAPACITY

Base Case

Highest 12-month Revenue (\$ in 000's)	\$2,357,167
Debt Service Test (25% of Revenue)	\$589,292
Less: Existing Max. Ann. D/S	-\$72,901
Remaining Maximum Annual D/S Capacity	\$516,391

(Dollars in Thousands)

	6 Years	12 Years	18 Years	24 Years
Assumed Date of Issuance	2004	2004	2004	2004
Assumed Final Maturity	2010	2016	2022	2028
Assumed Interest Rate ⁽¹⁾	1.95%	2.89%	3.50%	3.91%
Par Capacity	\$2,897,414	\$5,174,072	\$6,811,030	\$7,946,444
Annual Debt Service Required	\$516,391	\$516,391	\$516,391	\$516,391

(1) The assumed interest rates are based on the March 10, generic AA-rated MMD bond scale. The rates used are the weighted average coupon for a level debt service bond sizing based upon the final maturity in each scenario.

**DETAILED SUMMARY TABLES
FOR SENSITIVITY ANALYSES**

GARVEE BONDING CAPACITY

Market Sensitivity Case

Highest 12-month Revenue (\$ in 000's)	\$2,357,167
Debt Service Test (25% of Revenue)	\$589,292
Less: Existing Max. Ann. D/S	-\$72,901
Remaining D/S Capacity	\$516,391

(Dollars in Thousands)

	6 Years	12 Years	18 Years	24 Years
Assumed Year of Issuance	2004	2004	2004	2004
Assumed Final Maturity	2010	2016	2022	2028
Assumed Interest Rate⁽¹⁾	2.95%	3.89%	4.50%	4.91%
Par Amount	\$2,802,029	\$4,877,445	\$6,279,307	\$7,188,293
Annual Debt Service Required	\$516,391	\$516,391	\$516,391	\$516,391

(1) The assumed interest rates are based on the March 10, 2004, generic AA-rated MMD bond scale (increased by 100 basis points (1%) for market fluctuations). The rates used are the weighted average coupon for a level debt service bond sizing based upon the final maturity in each scenario.

Memorandum

To: CHAIR AND COMMISSIONERS

CTC Meeting: May 12-13, 2004

Reference No.: 4.4
Information Item

Ref: **ANNUAL ANALYSIS BY STATE TREASURER OF BONDING CAPACITY
(GARVEE) OF FEDERAL TRANSPORTATION FUNDS**

These analyses are provided to the California Transportation Commission (Commission) to assist in its compliance with the provisions of SB 928 (Burton) (Chapter 862, Statutes of 1999) requiring the Commission to prepare, in conjunction with the State Treasurer's Office (STO), an annual analysis of California's bonding capacity for issuing Grant Anticipation Revenue Vehicles, or GARVEE bonds and notes, which are capital market borrowings repaid by federal transportation funds deposited in the State Highway Account.

The State's authority for issuance of GARVEE obligations derives both from federal legislation and from the passage of SB 928 in 1999, which established Government Code Sections 14550 through 14555.9. The bill was sponsored by the STO to ensure California had the necessary state legislative authority to make use of this new financing tool for accelerating high priority transportation projects. SB 928 became effective January 1, 2000, and was further amended by AB 438 (Chapter 113, Statutes of 2001) and AB 3026 (Chapter 438, Statutes of 2002). This bonding capacity analysis is the fifth prepared since 2000, and the first analysis that is prepared based on both the issuance of bonds and the remaining bonding capacity based on varied assumptions.

Attachment